

Induced pluripotent stem cells : history, properties and potential applications.

ABSTRACT

The development of induced pluripotent stem cells (iPSCs) has been met with much enthusiasm and hailed as a breakthrough discovery by the scientific and research communities amidst the divisive and ongoing debates surrounding human embryonic stem cells (hESC) research. The discovery reveals the fact that embryonic pluripotency can be generated from adult somatic cells by the induction of appropriate transcriptional factor genes essential for maintaining the pluripotency. They provide an alternative source for pluripotent stem cells, thus representing a powerful new research tool besides their potential application in the field of regenerative medicine. In this review, the historical background of iPSCs generation will be discussed together with their properties and characteristics as well as their potential therapeutic applications.

Keyword: Induced pluripotent stem cells; Reprogramming genes; Epigenetics status; Pluripotency markers.